

US EPA ARCHIVE DOCUMENT

ANALYTICAL RESULTS

Prepared for:

Chevron
5000 State Route 128
HOOVEN OH 45033

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

January 07, 2010

Project: Hooven Barrier Monitoring Network

Samples arrived at the laboratory on Tuesday, December 22, 2009. The PO# for this group is 0015039270 and the release number is 50008931. The group number for this submittal is 1176228.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
Packer,122109 Grab Water	5871105
Packer,122109 Filtered Grab Water	5871106
Pump#1,122109 Grab Water	5871107
Pump#1,122109 Filtered Grab Water	5871108
Pump#2,122109 Grab Water	5871109
Pump#2,122109 Filtered Grab Water	5871110
FB-1,122109 Grab Water	5871111
TripBlank,122109 Grab Water	5871112
BSW-3D,122109 Grab Water	5871113
BSW-3D,122109 Filtered Grab Water	5871114
BSW-3S,122109 Grab Water	5871115
BSW-3S,122109 Filtered Grab Water	5871116
MW-137I,122109 Grab Water	5871117
MW-137I,122109 Filtered Grab Water	5871118

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Trihydro Corporation
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Attn: Trihydro Database

ELECTRONIC Trihydro Corporation
COPY TO
ELECTRONIC Trihydro Corporation
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Attn: Tim Gunn

Attn: Matthew Mitchell

Questions? Contact your Client Services Representative
Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,



Max E. Snavelly
Senior Specialist

**Sample Description: Packer, 122109 Grab Water
Barrier Monitoring Network**

**LLI Sample # WW 5871105
LLI Group # 1176228
OH**

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 10:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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Reported: 01/07/2010 at 07:11

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

PAC21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	3 J	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	17	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093632AA	12/30/2009 06:31	Holly Berry	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093632AA	12/30/2009 06:31	Holly Berry	1



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Page 1 of 1

Sample Description: Packer, 122109 Filtered Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871106
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 10:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 19:43	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 19:43	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Conners	1

Sample Description: Pump#1,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871107
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 10:45 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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PACP1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093632AA	12/30/2009 06:54	Holly Berry	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093632AA	12/30/2009 06:54	Holly Berry	1

Sample Description: Pump#1,122109 Filtered Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871108
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 10:45 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 19:46	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 19:46	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Conners	1

Sample Description: Pump#2,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871109
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 11:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

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Discard: 03/09/2010

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PACP2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093632AA	12/30/2009 07:17	Holly Berry	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093632AA	12/30/2009 07:17	Holly Berry	1

**Sample Description: Pump#2,122109 Filtered Grab Water
Barrier Monitoring Network**

**LLI Sample # WW 5871110
LLI Group # 1176228
OH**

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 11:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

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Discard: 03/09/2010

HOOVEN OH 45033

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 19:49	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 19:49	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Conners	1



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Page 1 of 1

Sample Description: FB-1,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871111
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 14:45 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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Discard: 03/09/2010

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PACFB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093632AA	12/30/2009 04:58	Holly Berry	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093632AA	12/30/2009 04:58	Holly Berry	1



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Page 1 of 1

Sample Description: TripBlank,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871112
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 16:00

Account Number: 11494

Submitted: 12/22/2009 10:15

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PACTB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093641AA	12/30/2009 12:29	Kerri E Koch	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093641AA	12/30/2009 12:29	Kerri E Koch	1

Sample Description: BSW-3D,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871113
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 13:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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Reported: 01/07/2010 at 07:11

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Discard: 03/09/2010

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BSW3D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles					
06291	Benzene	71-43-2	N.D.	ug/l 0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	1 J	0.8	1
GC Miscellaneous					
08097	CO2 by Headspace	124-38-9	7,200 J	ug/l 4,000	1
GC Miscellaneous					
07105	Methane	74-82-8	21	ug/l 5.0	1
Metals					
01750	Calcium	7440-70-2	70.2	mg/l 0.0702	1
01754	Iron	7439-89-6	0.251	0.0522	1
01757	Magnesium	7439-95-4	25.9	0.0172	1
07058	Manganese	7439-96-5	0.490	0.00084	1
01762	Potassium	7440-09-7	4.36	0.239	1
01767	Sodium	7440-23-5	24.2	0.433	1
SW-846 6010B modified					
02268	Ferric Iron	n.a.	N.D.	mg/l 0.052	1
Wet Chemistry					
00224	Chloride	16887-00-6	54.4	mg/l 4.0	20
00228	Sulfate	14808-79-8	51.5	6.0	20
EPA 351.2					
00217	Kjeldahl Nitrogen	n.a.	N.D.	mg/l 0.50	1
EPA 353.2					
00220	Nitrate Nitrogen	14797-55-8	2.7	mg/l 0.040	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	1
EPA 415.1					
01550	Total Carbon	n.a.	62.8	mg/l 2.5	5
06090	Total Inorganic Carbon	n.a.	60.3	2.5	1
00273	Total Organic Carbon	n.a.	2.5	0.50	1
SM20 2320 B					
00202	Alkalinity to pH 4.5	n.a.	mg/l as CaCO3 217	mg/l as CaCO3 0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	0.46	1

Sample Description: BSW-3D,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871113
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 13:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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Discard: 03/09/2010

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BSW3D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Chemistry					
		SM20 3500 Fe B modified	mg/l	mg/l	
08344	Ferrous Iron	n.a.	0.27	0.010	1
		SM20 4500 S2 D	mg/l	mg/l	
00230	Sulfide	18496-25-8	N.D.	0.054	1
		SM20 4500NH3 B/C modified	mg/l	mg/l	
00221	Ammonia Nitrogen	7664-41-7	0.21 J	0.20	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093641AA	12/30/2009 12:52	Kerri E Koch	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093641AA	12/30/2009 12:52	Kerri E Koch	1
08097	CO2 by Headspace	SW-846 8000B	1	093640000A	12/30/2009 09:39	Dustin A Underkoffler	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093570018A	12/23/2009 16:52	Dustin A Underkoffler	1
01750	Calcium	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
01754	Iron	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
01757	Magnesium	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
07058	Manganese	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
01762	Potassium	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
01767	Sodium	SW-846 6010B	1	093641848003	12/31/2009 19:57	John P Hook	1
02268	Ferric Iron	SW-846 6010B modified	1	100042268010	01/04/2010 12:15	Jennifer L Moyer	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Connors	1
00224	Chloride	EPA 300.0	1	10002196602B	01/03/2010 15:42	Ashley M Adams	20
00228	Sulfate	EPA 300.0	1	10002196602B	01/03/2010 15:42	Ashley M Adams	20
00217	Kjeldahl Nitrogen	EPA 351.2	1	09362108101A	12/29/2009 18:10	Joseph E McKenzie	1
00220	Nitrate Nitrogen	EPA 353.2	1	10006106102A	01/06/2010 10:52	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09356105101A	12/22/2009 20:52	Joseph E McKenzie	1
01550	Total Carbon	EPA 415.1	1	09365049501A	12/31/2009 03:06	James S Mathiot	5
06090	Total Inorganic Carbon	EPA 415.1	1	10004049504A	01/04/2010 20:50	James S Mathiot	1
00273	Total Organic Carbon	EPA 415.1	1	10004049501A	01/04/2010 02:29	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09362108101A	12/28/2009 11:00	Nancy J Shoop	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09364020201A	12/30/2009 14:46	Geraldine C Smith	1

Sample Description: BSW-3D,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871113
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 13:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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BSW3D

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09364020201A	12/30/2009 14:46	Geraldine C Smith	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09357834401A	12/23/2009 03:55	Daniel S Smith	1
00230	Sulfide	SM20 4500 S2 D	1	09357023001A	12/23/2009 15:41	Geraldine C Smith	1
00221	Ammonia Nitrogen	SM20 4500NH3 B/C modified	1	09357022101A	12/23/2009 18:00	Luz M Groff	1



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Page 1 of 1

Sample Description: BSW-3D,122109 Filtered Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871114
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 13:35 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1
07058	Manganese	7439-96-5	0.492	0.00084	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 20:00	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 20:00	John P Hook	1
07058	Manganese	SW-846 6010B	1	093641848003	12/31/2009 20:00	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Connors	1



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Page 1 of 1

Sample Description: BSW-3S,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871115
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 15:10 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

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Discard: 03/09/2010

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BSW3S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
06291	Benzene	71-43-2	N.D.	0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	N.D.	0.7	1
06291	Xylene (Total)	1330-20-7	3 J	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093641AA	12/30/2009 13:39	Kerri E Koch	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093641AA	12/30/2009 13:39	Kerri E Koch	1



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Page 1 of 1

Sample Description: BSW-3S,122109 Filtered Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871116
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 15:10 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

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Discard: 03/09/2010

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved					
SW-846 6010B			mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 20:03	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 20:03	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Conners	1

Sample Description: MW-137I,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871117
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 14:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

137MW

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles					
06291	Benzene	71-43-2	N.D.	ug/l 0.5	1
06291	Chlorobenzene	108-90-7	N.D.	0.8	1
06291	Ethylbenzene	100-41-4	N.D.	0.8	1
06291	Toluene	108-88-3	0.7 J	0.7	1
06291	Xylene (Total)	1330-20-7	N.D.	0.8	1
GC Miscellaneous					
08097	CO2 by Headspace	124-38-9	11,000 J	ug/l 4,000	1
GC Miscellaneous					
07105	Methane	74-82-8	N.D.	ug/l 5.0	1
Metals					
01750	Calcium	7440-70-2	76.8	mg/l 0.0702	1
01754	Iron	7439-89-6	0.0602 J	0.0522	1
01757	Magnesium	7439-95-4	21.5	0.0172	1
07058	Manganese	7439-96-5	0.596	0.00084	1
01762	Potassium	7440-09-7	3.67	0.239	1
01767	Sodium	7440-23-5	38.4	0.433	1
SW-846 6010B modified					
02268	Ferric Iron	n.a.	N.D.	mg/l 0.052	1
Wet Chemistry					
00224	Chloride	16887-00-6	59.8	mg/l 4.0	20
00228	Sulfate	14808-79-8	47.1	6.0	20
EPA 351.2					
00217	Kjeldahl Nitrogen	n.a.	N.D.	mg/l 0.50	1
EPA 353.2					
00220	Nitrate Nitrogen	14797-55-8	0.84	mg/l 0.040	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.015	1
EPA 415.1					
01550	Total Carbon	n.a.	66.7	mg/l 2.5	5
06090	Total Inorganic Carbon	n.a.	65.2	2.5	1
00273	Total Organic Carbon	n.a.	1.5	0.50	1
SM20 2320 B					
00202	Alkalinity to pH 4.5	n.a.	mg/l as CaCO3 215	mg/l as CaCO3 0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	0.46	1

Sample Description: MW-137I,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871117
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 14:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

137MW

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Chemistry					
		SM20 3500 Fe B modified	mg/l	mg/l	
08344	Ferrous Iron	n.a.	0.038 J	0.010	1
		SM20 4500 S2 D	mg/l	mg/l	
00230	Sulfide	18496-25-8	N.D.	0.054	1
		SM20 4500NH3 B/C modified	mg/l	mg/l	
00221	Ammonia Nitrogen	7664-41-7	N.D.	0.20	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T093641AA	12/30/2009 14:03	Kerri E Koch	1
06291	TCL by 8260 (water)	SW-846 8260B	1	T093641AA	12/30/2009 14:03	Kerri E Koch	1
08097	CO2 by Headspace	SW-846 8000B	1	093640000A	12/30/2009 09:48	Dustin A Underkoffler	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093570018A	12/23/2009 17:48	Dustin A Underkoffler	1
01750	Calcium	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
01754	Iron	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
01757	Magnesium	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
07058	Manganese	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
01762	Potassium	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
01767	Sodium	SW-846 6010B	1	093641848003	12/31/2009 20:06	John P Hook	1
02268	Ferric Iron	SW-846 6010B modified	1	100042268010	01/04/2010 12:15	Jennifer L Moyer	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Connors	1
00224	Chloride	EPA 300.0	1	10002196602B	01/03/2010 15:57	Ashley M Adams	20
00228	Sulfate	EPA 300.0	1	10002196602B	01/03/2010 15:57	Ashley M Adams	20
00217	Kjeldahl Nitrogen	EPA 351.2	1	09362108101A	12/29/2009 18:11	Joseph E McKenzie	1
00220	Nitrate Nitrogen	EPA 353.2	1	10006106102A	01/06/2010 10:56	K. Robert Caulfeild-James	1
00219	Nitrite Nitrogen	EPA 353.2	1	09356105101A	12/22/2009 20:53	Joseph E McKenzie	1
01550	Total Carbon	EPA 415.1	1	09365049501A	12/31/2009 03:11	James S Mathiot	5
06090	Total Inorganic Carbon	EPA 415.1	1	10004049504A	01/04/2010 20:50	James S Mathiot	1
00273	Total Organic Carbon	EPA 415.1	1	10004049501A	01/04/2010 02:36	James S Mathiot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	09362108101A	12/28/2009 11:00	Nancy J Shoop	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09364020201A	12/30/2009 14:46	Geraldine C Smith	1

Sample Description: MW-137I,122109 Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871117
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 14:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

137MW

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09364020201A	12/30/2009 14:46	Geraldine C Smith	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09357834401A	12/23/2009 03:55	Daniel S Smith	1
00230	Sulfide	SM20 4500 S2 D	1	09357023001A	12/23/2009 15:41	Geraldine C Smith	1
00221	Ammonia Nitrogen	SM20 4500NH3 B/C modified	1	09357022101A	12/23/2009 18:00	Luz M Groff	1

Sample Description: MW-137I,122109 Filtered Grab Water
Barrier Monitoring Network

LLI Sample # WW 5871118
LLI Group # 1176228
OH

Project Name: Hooven Barrier Monitoring Network

Collected: 12/21/2009 14:00 by JH

Account Number: 11494

Submitted: 12/22/2009 10:15

Chevron

Reported: 01/07/2010 at 07:11

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1
07058	Manganese	7439-96-5	0.604	0.00084	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093641848003	12/31/2009 20:09	John P Hook	1
07055	Lead	SW-846 6010B	1	093641848003	12/31/2009 20:09	John P Hook	1
07058	Manganese	SW-846 6010B	1	093641848003	12/31/2009 20:09	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848003	12/31/2009 09:50	Denise K Connors	1

Quality Control Summary

Client Name: Chevron

Group Number: 1176228

Reported: 01/07/10 at 07:11 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T093632AA	Sample number(s): 5871105,5871107,5871109,5871111							
Benzene	N.D.	0.5	ug/l	106		79-120		
Chlorobenzene	N.D.	0.8	ug/l	99		80-120		
Ethylbenzene	N.D.	0.8	ug/l	100		79-120		
Toluene	N.D.	0.7	ug/l	107		79-120		
Xylene (Total)	N.D.	0.8	ug/l	100		80-120		
Batch number: T093641AA	Sample number(s): 5871112-5871113,5871115,5871117							
Benzene	N.D.	0.5	ug/l	99	97	79-120	2	30
Chlorobenzene	N.D.	0.8	ug/l	96	95	80-120	2	30
Ethylbenzene	N.D.	0.8	ug/l	97	96	79-120	1	30
Toluene	N.D.	0.7	ug/l	104	104	79-120	0	30
Xylene (Total)	N.D.	0.8	ug/l	96	95	80-120	1	30
Batch number: 093570018A	Sample number(s): 5871113,5871117							
Methane	N.D.	5.0	ug/l	97		80-120		
Batch number: 093640000A	Sample number(s): 5871113,5871117							
CO2 by Headspace	N.D.	4,000.	ug/l	86		67-124		
Batch number: 093641848003	Sample number(s): 5871106,5871108,5871110,5871113-5871114,5871116-5871118							
Arsenic	N.D.	0.0072	mg/l	101		89-115		
Calcium	N.D.	0.0702	mg/l	106		90-112		
Iron	N.D.	0.0522	mg/l	108		90-112		
Lead	N.D.	0.0069	mg/l	99		80-120		
Magnesium	N.D.	0.0172	mg/l	101		89-110		
Manganese	N.D.	0.00084	mg/l	100		90-110		
Potassium	N.D.	0.239	mg/l	101		85-115		
Sodium	N.D.	0.433	mg/l	101		87-114		
Batch number: 09356105101A	Sample number(s): 5871113,5871117							
Nitrite Nitrogen	N.D.	0.015	mg/l	102		90-110		
Batch number: 09362108101A	Sample number(s): 5871113,5871117							
Kjeldahl Nitrogen	N.D.	0.50	mg/l	101		90-110		
Batch number: 09365049501A	Sample number(s): 5871113,5871117							
Total Carbon	0.56 J	0.50	mg/l	104		80-120		
Batch number: 10002196602B	Sample number(s): 5871113,5871117							
Chloride	N.D.	0.20	mg/l	108		90-110		
Sulfate	N.D.	0.30	mg/l	109		89-110		
Batch number: 10004049501A	Sample number(s): 5871113,5871117							
Total Organic Carbon	N.D.	0.50	mg/l	100		91-113		
Batch number: 10006106102A	Sample number(s): 5871113,5871117							

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron

Group Number: 1176228

Reported: 01/07/10 at 07:11 AM

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Nitrate Nitrogen	N.D.	0.040	mg/l	104		90-110		
Batch number: 09357022101A	Sample number(s): 5871113,5871117							
Ammonia Nitrogen	N.D.	0.20	mg/l	93	92	85-105	1	5
Batch number: 09357023001A	Sample number(s): 5871113,5871117							
Sulfide	N.D.	0.054	mg/l	98		90-110		
Batch number: 09357834401A	Sample number(s): 5871113,5871117							
Ferrous Iron	N.D.	0.010	mg/l	102		92-105		
Batch number: 09364020201A	Sample number(s): 5871113,5871117							
Alkalinity to pH 4.5	N.D.	0.46	mg/l as CaCO ₃	101		98-103		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: T093632AA	Sample number(s): 5871105,5871107,5871109,5871111 UNSPK: P871919								
Benzene	103	98	80-126	1	30				
Chlorobenzene	100	94	87-124	6	30				
Ethylbenzene	102	96	71-134	6	30				
Toluene	109	104	80-125	5	30				
Xylene (Total)	102	97	79-125	6	30				
Batch number: T093641AA	Sample number(s): 5871112-5871113,5871115,5871117 UNSPK: 5871113								
Benzene	103		80-126						
Chlorobenzene	99		87-124						
Ethylbenzene	103		71-134						
Toluene	113		80-125						
Xylene (Total)	103		79-125						
Batch number: 093570018A	Sample number(s): 5871113,5871117 UNSPK: 5871113								
Methane	72	67	35-157	5	20				
Batch number: 093640000A	Sample number(s): 5871113,5871117 UNSPK: P872396								
CO ₂ by Headspace	89	67	15-145	21*	20				
Batch number: 093641848003	Sample number(s): 5871106,5871108,5871110,5871113-5871114,5871116-5871118 UNSPK: P869131 BKG: P869131								
Arsenic	103	105	75-125	2	20	N.D.	N.D.	0 (1)	20
Calcium	100 (2)	89 (2)	75-125	1	20	67.6	68.0	1	20
Iron	101	102	75-125	0	20	1.62	1.66	2	20
Lead	98	100	75-125	2	20	N.D.	N.D.	0 (1)	20
Magnesium	100	101	75-125	0	20	7.50	7.50	0	20
Manganese	98	99	75-125	1	20	0.0525	0.0530	1	20
Potassium	103	104	75-125	1	20	3.13	3.27	4	20
Sodium	104	103	75-125	0	20	31.3	31.6	1	20

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron

Group Number: 1176228

Reported: 01/07/10 at 07:11 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 09356105101A Nitrite Nitrogen	Sample number(s): 5871113,5871117 108		90-110		UNSPK: P871892	BKG: P871892 0.024 J	0.025 J	2 (1)	20
Batch number: 09362108101A Kjeldahl Nitrogen	Sample number(s): 5871113,5871117 102		90-110		UNSPK: P872396 N.D.	BKG: P872396 N.D.		0 (1)	20
Batch number: 09365049501A Total Carbon	Sample number(s): 5871113,5871117 96		72-132		UNSPK: P872396 64.7	BKG: P872396 66.4		3	20
Batch number: 10002196602B Chloride	Sample number(s): 5871113,5871117 96		90-110		UNSPK: P871919 81.2	BKG: P871919 78.4		3	20
Sulfate	110		90-110		119	120		1	20
Batch number: 10004049501A Total Organic Carbon	Sample number(s): 5871113,5871117 104		64-141		UNSPK: P872253 21.4	BKG: P872253 21.7		2	4
Batch number: 10006106102A Nitrate Nitrogen	Sample number(s): 5871113,5871117 95		90-110		UNSPK: 5871113 2.7	BKG: 5871113 2.7		1	2
Batch number: 09357022101A Ammonia Nitrogen	Sample number(s): 5871113,5871117 BKG: P872757 29.4					29.0		1	2
Batch number: 09357023001A Sulfide	Sample number(s): 5871113,5871117 116 114		69-133	1 18	UNSPK: P872226 0.17	BKG: P872226 0.18		2 (1)	7
Batch number: 09357834401A Ferrous Iron	Sample number(s): 5871113,5871117 95 96		66-130	0 6	UNSPK: P871124 3.6	BKG: P871124 3.7		5 (1)	10
Batch number: 09364020201A Alkalinity to pH 4.5	Sample number(s): 5871113,5871117 98 98		64-130	0 2	UNSPK: P871097 45.7	BKG: P871097 45.5		0	4
Alkalinity to pH 8.3					N.D.	N.D.		0 (1)	4

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL by 8260 (water)

Batch number: T093632AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5871105	91	89	100	103
5871107	92	91	100	102
5871109	90	90	100	103
5871111	92	91	101	103
Blank	92	89	101	103
LCS	90	92	99	101
MS	91	92	100	101
MSD	93	91	101	103

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron
Reported: 01/07/10 at 07:11 AM

Group Number: 1176228

Surrogate Quality Control

Limits:	80-116	77-113	80-113	78-113
Analysis Name: TCL by 8260 (water)				
Batch number: T093641AA				
	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5871112	91	91	99	100
5871113	89	89	101	102
5871115	90	90	101	102
5871117	90	91	100	101
Blank	90	88	101	102
LCS	92	94	100	102
LCSD	92	92	99	101
MS	92	92	101	102
Limits:	80-116	77-113	80-113	78-113
Analysis Name: Volatile Headspace Hydrocarbon				
Batch number: 093570018A				
Propene				
5871113	73			
5871117	65			
Blank	100			
LCS	94			
MS	68			
MSD	67			
Limits:	42-131			

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only
 Acct. # 11494 Group# 176228 Sample # 5871105-18 **COC #** 211754

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>Cleura</u> Acct. #: <u>11494</u> Project Name/ID: <u>Barrett Hall Monitoring Network</u> PWSID #: <u>NR04/17000.m20</u> Project Manager: <u>Doug Lam</u> P.O. #: _____ Sampler: <u>John Hall</u> Quote #: _____ Name of state where samples were collected: <u>OHIO</u>				4 Matrix <input type="checkbox"/> Potable <input type="checkbox"/> Check if Applicable <input type="checkbox"/> NPDES		5 Analyses Requested Preservation Codes H N NH4O VOC's PZL 8080 Dissolved Metals MUA										For Lab Use Only FSC: _____ SCR#: _____			
						Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other										6 Temperature of samples upon receipt (if requested)			
2 Sample Identification			3 Grab Composite		Soil Water Other		Total # of Containers		Remarks										
Date Collected Time Collected																			
Packer, 12/21/09			12/21/09 1035		X		X		See Attached Analytical st										
Pump #1, 12/21/09			12/21/09 1045		X		X												
Pump #2, 12/21/09			12/21/09 1100		X		X		Dissolved Metals After Field Filtration										
FB-1, 12/21/09			12/21/09 1445		X		X		OK										
Trip Blank, 12/21/09			12/21/09 1600		X		X		OK										
BSW-30, 12/21/09			12/21/09 1335		X		X		OK										
BSW-35, 12/21/09			12/21/09 1510		X		X		OK										
MU-1377, 12/21/09			12/21/09 1400		X		X		OK										
7 Turnaround Time Requested (TAT) (please circle) Normal <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone Fax <u>E-mail</u> Phone #: <u>513-355-1323</u> Fax #: <u>513-353-9664</u> E-mail address: <u>mr.tchell@trilby.com</u>															Relinquished by: <u>[Signature]</u> Date Time Received by: _____ Relinquished by: _____ Date Time Received by: _____ Relinquished by: _____ Date Time Received by: _____ Relinquished by: _____ Date Time Received by: _____ Relinquished by: _____ Date Time Received by: _____				
8 Data Package Options (please circle if required) Type I (validation/NJ Reg) TX TRRP-13 Type II (Tier II) MA MCP CT RCP Type III (Reduced NJ) Site-specific QC (MS/MSD/Dup)? Yes No Type IV (CLP SOW) (if yes, indicate QC sample and submit triplicate volume.) Type VI (Raw Data Only) Internal COC Required? Yes / No										9									

4
Barrier Monitoring Network Sampling Q 2009
Analytical Requests for Groundwater
Chevron Cincinnati Facility, Hooven, Ohio

VOLATILE ORGANICS

Benzene
Chlorobenzene
Ethylbenzene
Toluene
Xylenes (total)

DISSOLVED METALS – FIELD FILTERED

Arsenic
Lead
Manganese

MNA PARAMETERS

Alkalinity to pH 4.5
Alkalinity to pH 8.3
Ammonia Nitrogen
Calcium
Carbon Dioxide
Chloride
Iron (II) and Iron (III)
Magnesium
Total Manganese
Methane
Nitrate Nitrogen
Nitrite Nitrogen
Potassium
Sodium
Sulfate
Sulfide
Total Kjeldahl Nitrogen
Total Organic Carbon
Total Inorganic Carbon

Environmental Sample Administration Receipt Documentation Log

Client/Project: Chevron

Shipping Container Sealed: YES NO

Date of Receipt: 12/22/09

Custody Seal Present * : YES NO

Time of Receipt: 1015

* Custody seal was intact unless otherwise noted in the discrepancy section

Source Code: 50-1

Package: Chilled Not Chilled

Unpacker Emp. No.: 1454

Temperature of Shipping Containers

Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	009251	1.8°C	TB	WI	Y	B, L	
2	↓	1.4°C	↓	↓	↓	↓	
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody. 0

Paperwork Discrepancy/Unpacking Problems:

Sample Administration Internal Chain of Custody

Name	Date	Time	Reason for Transfer
<u>[Signature]</u>	<u>12/22/09</u>	<u>1145</u>	Unpacking / <u>Storage</u>
<u>Mary Beth Reed</u>	<u>12/22/09</u>	<u>1146</u>	Place in Storage or <u>Entry</u>
			Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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